

Application No. 09/751,231
Amendment dated January 29, 2004
Reply to Office Action of December 2, 2003

Atty Dkt No. 7610-0040

This listing of the claims will replace all prior versions and listings of claims in the application:

LISTING OF THE CLAIMS

Claim 1 (currently amended): A device comprising:

a substrate having a surface comprising a probe region and an indicator region;
a plurality of different molecular probes attached to the probe region of the substrate surface; thereof and
an integrated indicator attached to the indicator region and having a structure that exhibits a detectable response when exposed to a condition to which the device may be exposed,
wherein

each different molecular probe is selected to interact with a corresponding target,
and further wherein

the indicator structure continues to exhibit exhibits the detectable response for at least one minute after removing the device from the condition, and

the indicator is not a single-stranded oligonucleotide if the probes are single-stranded oligonucleotides.

Claim 2 (canceled).

Claim 3 (previously presented): The device of claim 1, wherein the indicator response to the condition is detectable for at least 1 hour after removing the device from the condition.

Claim 4 (original): The device of claim 3, wherein the indicator response to the condition is substantially permanently detectable.

Claim 5 (original): The device of claim 1, wherein the condition is an environmental condition that allows for target-probe interaction.

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Claim 6 (currently amended): The device of claim 5, wherein the environmental condition is a predetermined temperature that allows for target-probe interaction.

Claim 7 (currently amended): The device of claim 6, wherein the predetermined temperature is a maximum temperature that allows for target-probe interaction.

Claim 8 (original): The device of claim 7, wherein the maximum temperature is about 60°C to about 90°C.

Claim 9 (currently amended): The device of claim 6, wherein the predetermined temperature is a minimum temperature that allows for target-probe interaction.

Claim 10 (original): The device of claim 9, wherein the minimum temperature is about 35°C to about 45°C.

Claim 11 (withdrawn): The device of claim 5, wherein the environmental condition is a predetermined water content.

Claim 12 (withdrawn): The device of claim 5, wherein the environmental condition is a chemical concentration.

Claim 13 (withdrawn): The device of claim 12, wherein the chemical concentration is a formamide concentration.

Claim 14 (withdrawn): The device of claim 12, wherein the chemical concentration comprises a pH of about 5 to about 9.

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Claim 15 (withdrawn): The device of claim 12, wherein the chemical concentration is a salinity of about 0.01 molar to about 8 molar.

Claim 16 (withdrawn): The device of claim 1, wherein the condition is the presence of a chemical moiety that affects the target-probe interaction.

Claim 17 (withdrawn): The device of claim 16, wherein the chemical moiety hinders the target-probe interaction.

Claim 18 (withdrawn): The device of claim 16, wherein the chemical moiety enhances the target-probe interaction.

Claim 19 (original): The device of claim 1, wherein the indicator response is optically detectable.

Claim 20 (original): The device of claim 19, wherein the indicator response is fluorescently detectable.

Claim 21 (original): The device of claim 1, wherein the indicator response is magnetically detectable.

Claim 22 (original): The device of claim 1, wherein the indicator response is electrically detectable.

Claim 23 (original): The device of claim 1, wherein the indicator response is machine detectable.

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Claim 24 (currently amended): The device of claim 1, wherein the response occurs after exposure of the indicator to the condition for at least a predetermined period that allows for target-probe interaction.

Claim 25 (original): The device of claim 24, wherein the predetermined period is about 1 minute to about 28 hours.

Claim 26 (original): The device of claim 25, wherein the predetermined period is about 5 to about 10 hours.

Claim 27 (original): The device of claim 26, wherein the predetermined period is about 6 to about 8 hours.

Claim 28 (original): The device of claim 1, wherein the molecular probes are biomolecular.

Claim 29 (original): The device of claim 28, wherein the molecular probes are nucleotidic.

Claim 30 (original): The device of claim 28, wherein the molecular probes are peptidic.

Claim 31 (original): The device of claim 28, wherein the molecular probes are oligomeric.

Claim 32 (original): The device of claim 28, wherein the molecular probes are polymeric.

Claim 33 (original): The device of claim 1, wherein the molecular probes are arranged in an array on the substrate surface.

Claim 34 (original): The device of claim 33, wherein the array comprises at least about 10 probes per square centimeter of substrate surface.

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Claim 35 (original): The device of claim 34, wherein the array comprises at least about 50,000 probes per square centimeter of substrate surface.

Claim 36 (original): The device of claim 35, wherein the array comprises at least about 200,000 probes per square centimeter of substrate surface.

Claim 37 (original): The device of claim 36, wherein the array comprises at least about 1,000,000 probes per square centimeters of substrate surface.

Claim 38 (original): The device of claim 1, wherein the substrate further contains machine-readable information.

Claim 39 (original): The device of claim 38, wherein the substrate further comprises a medium on which information may be written.

Claim 40 (original): The device of claim 39, wherein the medium is selected to contain electronic information.

Claim 41 (original): The device of claim 39 wherein the medium is noncoplanar with respect to the surface on which the molecular probes are attached.

Claim 42 (original): The device of claim 41, wherein the medium is writable from a surface that opposes the surface on which the molecular probes are attached.

Claim 43 (original): The device of claim 1, wherein the substrate comprises a disk.

Claim 44 (original): The device of claim 1, wherein the substrate comprises a tape.

Claim 45 (original): The device of claim 1, wherein the substrate comprises a well plate.

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Claim 46 (original): The device of claim 1, wherein the substrate comprises a slide.

Claim 47 (original): The device of claim 1, wherein the targets represent portions of a single molecule.

Claim 48 (original): The device of claim 1, wherein the targets represent portions of single cell.

Claim 49 (original): The device of claim 1, wherein the integrated indicator comprises nucleotidic material.

Claim 50 (withdrawn): A device comprising a substrate having a plurality of molecular probes attached to a surface thereof and a plurality of different integrated indicators, each indicator selected to exhibit a response when exposed to one of a plurality of conditions to which the substrate may be exposed, wherein the molecular probes are selected to interact with corresponding targets, and further wherein the response is detectable for at least one minute after removing the indicator from the condition.

Claim 51 (withdrawn): The device of claim 50, wherein the molecular probes are selected to interact with corresponding targets when exposed to at least one of the plurality of conditions.

Claim 52 (withdrawn): The device of claim 51, wherein the molecular probes are selected to interact with corresponding targets when exposed to all of the conditions.

Claim 53 (withdrawn): The device of claim 52, wherein the molecular probes are selected to interact with corresponding targets when exposed to all of the conditions simultaneously.

Claim 54 (currently amended) A device comprising:

a substrate having a surface comprising a probe region and an indicator region;

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a plurality of nucleotidic molecular probes attached to the probe region of the substrate surface; thereof and

an integrated indicator attached to the indicator region and having a structure that exhibits a detectable response when exposed to a condition to which the device may be exposed,
wherein

the nucleotidic molecular probes are selected to interact with corresponding targets, and further wherein

the indicator structure continues to exhibit exhibits the detectable response for at least one minute after removing the device from the condition; and

the indicator is not a single-stranded oligonucleotide if the probes are single-stranded oligonucleotides.

Claim 55 (original): The device of claim 54, wherein the condition represents a hybridization condition between the probes and targets.

Claim 56 (currently amended): A device comprising:

a substrate having a surface comprising a probe region and an indicator region, wherein the probe region is adapted for attachment to a plurality of molecular moieties;
a source of molecular moieties suitable for attachment to the probe region; and
an integrated indicator attached to the indicator region and having a structure that exhibits a detectable response when exposed to a condition,

wherein

the indicator structure continues to exhibit exhibits the detectable response for at least one minute after removing the device from the condition, and

the indicator is not a single stranded oligonucleotide if the molecular moieties are single stranded oligonucleotides.

Claim 57 (original): The device of claim 56, wherein the condition is suitable for attaching the plurality of molecular moieties to the substrate surface.

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Claim 58 (original): The device of claim 56, wherein the condition is not suitable for attaching the plurality of molecular moieties to the substrate surface.

Claim 59-80 (canceled).

Claim 81 (previously presented): The device of claim 6, wherein the indicator structure is nucleotidic.

Claim 82 (previously presented): The device of claim 81, wherein the indicator structure is comprised of a single-stranded oligonucleotide having defined sequences prehybridized to a labeled target.

Claim 83 (previously presented): The device of claim 81, wherein the indicator structure is comprised of a double-stranded oligonucleotide having one labeled strand.

Claim 84 (previously presented): The device of claim 6, wherein the indicator structure is comprised of wax.